

# PATENT ABSTRACTS OF JAPAN

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## (54) COMMUNICATION SYSTEM, TRANSMITTER AND RECEIVER

(57)Abstract:

**PROBLEM TO BE SOLVED:** To suppress the deterioration of quality and to improve transmission efficiency by differential phase-shift-keying/modulating first data, executing first diffusion, multiplying second data by first data modulation output, setting it to be second diffusion and adding/multiplying it by first diffusion.

**SOLUTION:** Connection control data is delayed by one bit through a one bit delay circuit 404 and the differential values of two bits, which are before and behind connection control data of direct input, are obtained in an exclusive OR XOR computing element 403. They are given to XOR computing elements 401 and 405 and they are differential phase-shift-keying/modulated. Then, XOR is found with the output of the XOR computing element 403 in the XOR computing element 401 and the pilot signals of all '0' are diffused in a pilot signal diffusion device 402 and they are given to an adder 407. User data is diffused in a user signal diffusion device 406 by a similar processing and the adder 407 multiplexes both diffusion signals. Then, a carrier modulator 408 modulates a transmission line and the signals are transmitted to a base station from an antenna 409.

